

## REMARKS

Claim 1 has been amended to incorporate features of claim 18. Specifically, claim 1 was amended to specify that at least part of the leach liquor remaining after separation of the titanyl sulfate from the leach liquor is recycled either to form part of the leach liquor of step (a) or to form part of the leach liquor in a further leach step, e.g., step (g).

All the previous claims were rejected as being unpatentable in view of US 4,288,418 to Davis. While the Examiner admits that Davis does not teach "separating titanyl sulfate from the leach liquor", the Examiner argues that the effect of the Davis process (which crystallizes iron sulfate from the leach liquor to provide a leach liquor containing titanyl sulfate) and the claimed process are the same. Applicants cannot agree with this conclusion. As the Examiner will appreciate, the leach liquor contains not only free acid, Ti, and Fe but also, Mn, Cr, V, Ni, Si, Ca, Mg, Zn, Cu, Th, and U. According to the teachings of Davis, a portion of the Fe is removed leaving a solution containing free acid, Ti, and trace elements from the ilmenite such as Mn, Cr, V, Ni, Si, Ca, Mg, Zn, Cu, Th, and U (col. 8, lines 14-35). The solution is then subjected to hydrolysis to hydrolyze the  $\text{TiOSO}_4$ . But, because the Davis solution contains one or more of Mn, Cr, V, Ni, Si, Ca, Mg, Zn, Cu, Th, and U, which are known contaminants, the  $\text{TiO}_2$  resulting from hydrolysis is necessarily contaminated.

On the other hand, in the claimed process, titanyl sulfate is separated from the leach liquor, which necessarily means that the titanyl sulfate is separated from trace elements in the leach liquor. As a result, the  $\text{TiO}_2$  resulting from the claimed process is

less contaminated than that of Davis. This is a result that differs from that taught by Davis.


Moreover, claim 1 has been amended to require that the leach liquor remaining after separation is recycled. While Applicants appreciate that Davis teaches recycling a solution after filtration of the hydrolysis step, such a solution differs from that being recycled in the claimed process. For example, as taught by Davis, hydrolysis is achieved by diluting the solution to be hydrolyzed with water, which will necessarily reduce the acid strength of the solution being recycled, particularly when compared with the solution prior to hydrolysis. On the other hand, in the claimed process, the leach liquor remaining after separation of the titanyl sulfate and being recycled will have an acid strength greater than that of Davis.

In view of these substantial differences, Applicants submit that the Examiner's premise that the effect of the Davis process and the claimed process is the same. Since the premise fails, the conclusion fails. Therefore, the claims are patentable over Davis and Applicants request notification to that effect.

As for the provisional rejection on the ground of non-statutory obviousness-type double patenting, that rejection will be promptly addressed when Applicants are notified that all other grounds of rejection have been overcome.

If, for any reason, the Examiner feels that the above amendments and remarks do not put the claims in condition for allowance, the undersigned attorney can be reached at (312) 321-4276 to resolve any remaining issues.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'G. Peter Nichols', is written over a horizontal line.

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